

Flexure Based Electro-Magnetic Drive for High Torque Motor, Phase I

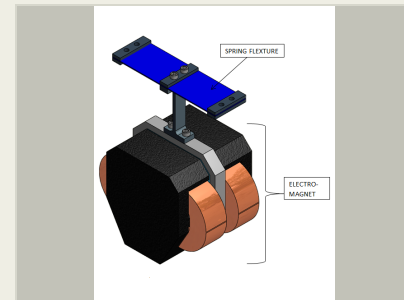
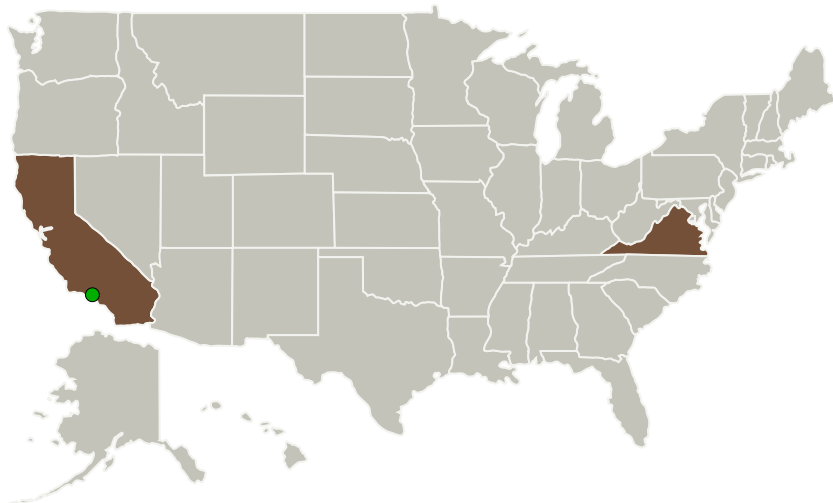


Completed Technology Project (2014 - 2014)

Project Introduction

The National Research Council (NRC) has identified the need for motors and actuators that can operate in extreme temperature environments as a technical gap to exploring deeper into our solar systems. Bear Technologies has been exploring motor design for more than 5 years. A number of designs are blended to create the basis of the proposed innovation. The research focuses on a fundamentally different motor design that explores the use of flexures to amplify the forces created by the electro-magnets. In this way, the design can be much simplified, eliminates wear, free play and the need for lubricants. Bear will focus on investigating low stress flexure designs and relatively high force electro-magnetic drives that can produce the forces needed for a high torque motor. If proven this flexure component will be an enabling technology for the extreme environment high torque motor.

Primary U.S. Work Locations and Key Partners



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Organizations Performing Work	Role	Type	Location
Bear Technologies, LLC	Lead Organization	Industry Small Disadvantaged Business (SDB)	Oilville, Virginia
● Jet Propulsion Laboratory(JPL)	Supporting Organization	NASA Center	Pasadena, California

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Primary U.S. Work Locations

California

Virginia

Project Transitions



June 2014: Project Start



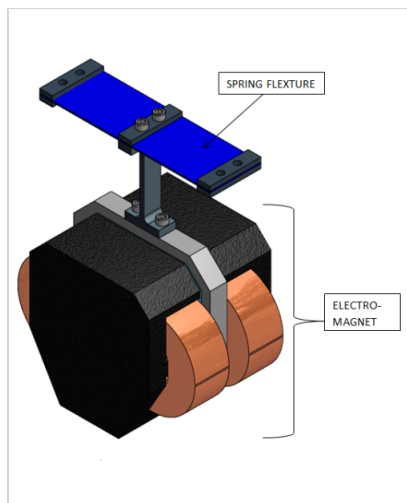
December 2014: Closed out

Closeout Summary: Flexure Based Electro-Magnetic Drive for High Torque Motor, Phase I Project Image

Closeout Documentation:

- Final Summary Chart Image(<https://techport.nasa.gov/file/137571>)

Images



Briefing Chart Image

Flexure Based Electro-Magnetic Drive for High Torque Motor, Phase I

(<https://techport.nasa.gov/image/132052>)

Organizational Responsibility

Responsible Mission Directorate:

Space Technology Mission Directorate (STMD)

Lead Organization:

Bear Technologies, LLC

Responsible Program:

Small Business Innovation Research/Small Business Tech Transfer

Project Management

Program Director:

Jason L Kessler

Program Manager:

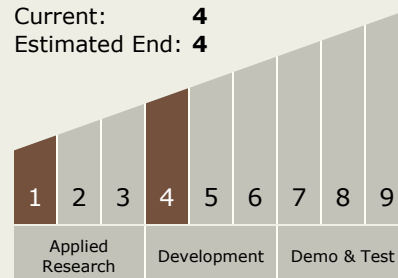
Carlos Torrez

Principal Investigator:

Thomas Myrick

Technology Maturity (TRL)

Start: **1**
Current: **4**
Estimated End: **4**



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Technology Areas

Primary:

- TX04 Robotic Systems
 - └ TX04.2 Mobility
 - └ TX04.2.4 Surface Mobility

Target Destinations

The Sun, Earth, The Moon, Mars, Others Inside the Solar System, Outside the Solar System